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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,746	08/07/2001	Grant Moulton	CISCP705	2962
26541	7590	05/19/2005	EXAMINER	
RITTER, LANG & KAPLAN P.O. BOX 2448 SARATOGA, CA 95070			LEUNG, CHRISTINA Y	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,746

Applicant(s)

MOULTON ET AL.

Examiner

Christina Y. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9-13, 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6, 7, 12, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka et al. (US 5,894,362 A) in view of Takatsu et al. (US 6,441,955 B1) and Liden et al. (EP 0981212 A1).

Regarding claim 1, Onaka et al. disclose in a WDM communication system (Figure 5), a transmitter comprising:

a plurality of lasers 24-1...n assigned to transmit optical signals on a corresponding plurality of WDM channels (column 6, lines 42-44);

a multiplexer 30 that combines the plurality of optical signals onto a single fiber to form a composite WDM signal (column 6, lines 50-52);

an optical channel monitor (optical spectrum monitor 34) that monitors the composite WDM signal to determine wavelengths of the plurality of optical signals (column 6, lines 64-67; column 7, lines 1-3); and

a control block 36 that controls transmission wavelengths of the plurality of lasers to match wavelengths of the optical signals to desired WDM channel positions (column 7, lines 4-26).

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Regarding claim 7, as similarly discussed above with regard to claim 1, Onaka et al. disclose in a WDM communication system (Figure 5), a method for transmitting comprising:

- generating a plurality of optical signals on a plurality of WDM channels using a corresponding plurality of lasers 24-1...n (column 6, lines 42-44);
- multiplexing the plurality of optical signals onto a single fiber to form a composite WDM signal (using multiplexer 30; column 6, lines 50-52);
- monitoring the composite WDM signal to determine wavelengths of the plurality of lasers (using optical spectrum monitor 34; column 6, lines 64-67; column 7, lines 1-3); and
- controlling transmission wavelengths of the plurality of lasers to match wavelengths of the optical signals to desired WDM channel positions using control circuit 36; column 7, lines 4-26).

Regarding claim 13, as similarly discussed above with regard to claims 1 and 7, Onaka et al. disclose in a WDM communication system (Figure 5), apparatus for transmitting comprising:

- means for generating a plurality of optical signals on a corresponding plurality of WDM channels (lasers 24-1...n; column 6, lines 42-44);
- means for multiplexing the plurality of optical signals onto a single fiber to form a composite WDM signal (multiplexer 30; column 6, lines 50-52);
- means for monitoring the composite WDM signal to determine wavelengths of the plurality of optical signals (optical spectrum monitor 34; column 6, lines 64-67; column 7, lines 1-3); and

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means for controlling transmission wavelengths of the plurality of optical signals to match wavelengths of the optical signals to desired WDM channel positions (control circuit 36; column 7, lines 4-26).

Regarding claims 1, 7, and 13, Onaka et al. does not specifically disclose an optical attenuator or other means for blocking further transmission of the composite WDM signal when monitoring determines that a wavelength of at least one of the plurality of lasers is outside a desired range.

However, Takatsu et al. teach a system related to the system disclosed by Onaka et al., including means for transmitting a wavelength division multiplexed signal (through multiplexer 3-1 in Figure 8, for example). Takatsu et al. further teaches that optical attenuators 2-1 may be used to block transmission of a signal when a channel monitor (i.e., spectrum analyzer 5-2, shown in Figure 8) determines that its wavelength is outside a desired range (column 13, lines 53-60; column 14, lines 1-7). It is well understood in the art that the plurality of signals in a wavelength division multiplexing system are distinguished from each other by wavelength (by definition of a WDM system), and therefore, signals whose respective wavelengths are the same or too close/similar may interfere with each other and may not be properly received.

Takatsu et al. particularly suggest blocking only the signal having the undesired wavelength and do not specifically suggest blocking the composite WDM signal. However, Liden et al. also teach a system related to the system disclosed by Onaka et al., including means for transmitting a wavelength division multiplexed signal (Figures 1 and 2). Liden et al. further teach that an attenuator (Figure 2, element 15) may be used to block further transmission of a composite WDM signal when a monitor has detected an abnormality on the path (column 5, lines

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17-28; column 6, line 58; column 7, lines 1-3). Examiner notes that although Liden et al. refer to element 15 as a “pre-amplifier,” they clearly teach that this element may be used as an attenuating element (column 5, lines 23-28).

Regarding claims 1, 7, and 13, it would have been obvious to a person of ordinary skill in the art to include an attenuator or other means for blocking the composite WDM signal as taught by Takatsu et al. and Liden et al. in the system and method disclosed by Onaka et al. in order to terminate the transmission when a wavelength error is detected until the situation is properly resolved. Examiner notes that the system disclosed by Onaka et al. is already directed to maintaining correct wavelengths of the signals (column 3, lines 19-21). One in the art would have been particularly motivated to include an attenuator as taught by Takatsu et al. and Liden et al. in order to ensure that the equipment at a receiving end of the communications system receives either multiplexed signals that are correctly transmitted, or in the event of error, none at all, and to thus prevent improperly transmitted signals from being unknowingly received.

Regarding claims 6, 12, and 18, Onaka et al. disclose that the optical channel monitor (or monitoring means) comprises an optical spectrum analyzer (element 34). Although the terminology of Onaka et al. differs slightly from that of Applicants, the “optical spectrum monitor” disclosed by Onaka et al. is clearly a spectrum analyzer that analyzes a spectrum of an optical signal (see column 2, lines 56-60 and column 5, lines 45-47, for example).

3. Claims 3-5, 9-11, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka et al. in view of Takatsu et al. and Liden et al. as applied to claims 1, 7, and 13 above, and further in view of Jung et al. (US 2002/0048063 A1).

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Regarding claims 3-5, 9-11, and 15-17, Onaka et al. in view of Takatsu et al. and Liden et al. describe systems as discussed above with regard to claims 1, 7, and 13.

Regarding claims 3, 9, and 15, Onaka et al. disclose providing an additional output 30B of the multiplexer 30 (Figure 5) to provide the composite WDM signal for the monitoring, but they do not specifically disclose splitting a portion of the composite signal using a tap coupler. However, tap couplers are well known in the art, and Jung et al. teach a system related to the one disclosed by Onaka et al. including providing a feedback control to a plurality of lasers in a wavelength division multiplexing system (Figure 1), and further including a tap coupler 28a that splits off a portion of the composite WDM signal for monitoring by an optical channel monitor (page 4, paragraph 0065).

Regarding claims 3, 9, and 15, it would have been obvious to a person of ordinary skill in the art to specifically use a tap coupler as taught by Jung et al. instead of an extra multiplexer output to provide the feedback signal in the system described by Onaka et al. in view of Takatsu et al. and Liden et al. as an engineering design choice of a way to obtain the signal for monitoring. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art.

Regarding claims 4, 10, and 16, Onaka et al. disclose an optical channel monitor but do not specifically disclose that it comprises a tunable filter. However, various ways of implementing optical channels monitors are well known in the art, and again Jung et al. teach a system related to the one disclosed by Onaka et al. including a channel monitor. Jung et al. further teach that a optical channel monitor comprising:

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a tunable filter (Fabry-Perot etalon filter 24) that is tuned through a spectrum of the WDM signal ;

a photodetector (optical receiver 14b), coupled to an output of the tunable filter, that detects peaks of the WDM signal (page 4, paragraphs 0065-0071); and

means for determining wavelengths of the lasers at positions of the peaks (microprocessor 20; page 4, paragraphs 0077-0081).

Regarding claims 4, 10, and 16, it would have been obvious to a person of ordinary skill in the art to specifically use a tunable filter as taught by Jung et al. to implement the optical channel monitor already disclosed in the system described by Onaka et al. in view of Takatsu et al. and Liden et al. as an engineering design choice of a way to analyze the contents of the signal. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art.

Regarding claims 5, 11, and 17, Onaka et al. disclose an optical channel monitor but do not specifically disclose that it comprises an arrayed waveguide grating. However, again, various ways of implementing optical channels monitors are well known in the art, and again Jung et al. teach a system related to the one disclosed by Onaka et al. including a channel monitor. Jung et al. also teach a optical channel monitor alternatively comprising an arrayed waveguide grating that outputs a plurality of monitor signals each indicative of composite WDM signal strength at a particular spectral position (page 3, paragraph 0052).

Regarding claims 5, 11, and 17, it would have been obvious to a person of ordinary skill in the art to specifically use an arrayed waveguide grating as taught by Jung et al. to implement

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the optical channel monitor already disclosed in the system described by Onaka et al. in view of Takatsu et al. and Liden et al. as an engineering design choice of a way to analyze the contents of the signal. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art. Examiner respectfully notes that Applicants own claims recite different, alternative implementations of a channel monitor.

Response to Arguments

4. Applicants' arguments filed 02 December 2004 have been fully considered but they are not persuasive.

Examiner respectfully notes that, contrary to Applicants' assertion on page 7 of their response, Liden et al. do not disclose that the element unintentionally behaves as an attenuator in a non-operational state. Instead, Liden et al. disclose that the "amplifier" element is deliberately configured to attenuate signals and thereby may be functionally considered an attenuating element (column 5, lines 17-38; see also column 8, lines 10-12). The element attenuates power as desired by users in a fully operational mode.

However, Examiner respectfully further notes that the rejections also rely on Takatsu et al. to provide a teaching of an attenuator element 2-1 that blocks transmission of a signal when a channel monitor (i.e., spectrum analyzer 5-2, shown in Figure 8) determines that its wavelength is outside a desired range (column 13, lines 53-60; column 14, lines 1-7). Examiner relies on Liden et al. mainly to provide a suggestion of blocking further transmission of the entire composite WDM signal instead of blocking only a single channel within the composite signal.

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Examiner notes that the new grounds of rejection of claims 3-5, 9-11, and 15-17 based on Onaka et al. in view of Takatsu et al., Liden et al., and Jung et al. were necessitated by Applicants' amendment because the amendment changed the limitations of independent claims 1, 7, and 13, and therefore presented new combinations of elements in claims 3-5, 9-11, and 15-17 (even though the combinations in the independent claims themselves were previously presented as now-canceled dependent claims).

Conclusion

5. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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